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peculiar climatic conditions, which produce an unusual depression of the zones in Portugal, and which also manifest themselves in rendering the zone of vegetation much lower in Sumatra than in Java, on account of the difference in insolation, caused by the more frequent and heavier clouds in Sumatra, where the axis of the mountains is perpendicular to the course of the moist, prevailing winds, whilst in Java it is parallel to it. In this respect Portugal resembles Sumatra, and nowhere are the effects of similar climatic conditions more evident than in the southern portions of Chili, and in Terra del Fuego.

NOTE ON THE INFLUENCE OF LIGHT ON THE DEVELOPMENT OF PLANTS.—Last summer a *Mentychia ornata*, about a fortnight before commencing to bloom, was prostrated by a storm and remained in that position for a week before I restored it to its upright position. The inflorescence of *Mentychia* is centrifugal, the terminal flower opening first and the rest in their order downward, each flower opening in the evening and closing before sunrise, reopening on a second and usually on a third evening. In this instance the regular order was disturbed, the second flower not opening till after the fourth, then the fifth to the eighth in order, then the twelfth followed by the eleventh, ninth and tenth, then the thirteenth followed by the sixteenth, fourteenth and fifteenth. All the retarded flowers were on the lower side of the prostrate plant, the retardation being the consequence of the diminished exposure to light during one week.—FRED. BRENDÉL.

ZOOLOGY.

THE STRUCTURE OF SPONGES.—An exceedingly valuable work on the calcareous sponges has lately been published by Professor Haeckel. An increased interest in these organisms has been felt from their frequent occurrence at great depths in the sea, the various dredging expeditions in the north Atlantic and the Mediterranean having revealed many new forms of the silicious, or glass sponges and their allies. Of the animal nature of sponges but few naturalists doubt. Carter, an English microscopist believed that the sponge was an aggregation of Amœba-like infusoria, living among a framework of silicious or limestone spicules. A little later, the lamented Professor H. J. Clark, of this country published, in 1866, a paper in which he maintained that the sponge

was an aggregation of flagellate infusoria, like monads of the genera *Monas*, *Anthophysa*, *Codosiga*, etc. The sponge, then, in his view was a compound protozoan animal. Now Haeckel contends that these monads of Clark are simply cells lining the general stomach-cavity of the sponge, each bearing a cilium or thread, and that the sponge is not a compound infusorian, but a much more highly organized animal related to the radiates, such as the Polyps (*Hydra*, etc.). He distinguishes in them a general cavity or stomach, the walls of which consist, as in the Acalephs, of two layers (entoderm and exoderm) of cells. He regards the sponges and Acalephæ as having been evolved from a common ancestor which he terms *Protascus*.

Since writing the foregoing lines we have received a paper by Metschnikoff on the development of a calcareous sponge (*Sycon ciliatum*). He clearly proves that Haeckel's view of the structure of the sponges was correct, but shows that there is no real relationship between the sponges and radiates.

HAECKEL'S EMBRYONAL AND ANCESTRAL FORM OF ALL ANIMALS.—Regarding the sponges, then, as consisting of two layers of cells, surrounding a body cavity, somewhat as in the *Hydra*, Haeckel compares the sponge to the embryos of the higher animals, both vertebrate and invertebrate. In his view the germ of all animals, and the adult of such a simple form as *Hydra*, may be reduced to the simple form of the young of a calcareous sponge which he calls *Gastrula*. "The *Gastrula* I consider as the truest and most significant embryonal-form of the animal kingdom." It leads in his view to the sponges, to the Acalephæ, to the worms, to the echinoderms, to the mollusks, and to the vertebrates, through Amphioxus. Embryonal forms which may easily be traced from *Gastrula*, occur among the Arthropods (Crustacea as well as Insects). In all these representatives of different stocks of animals, the *Gastrula* always maintains the same structure. From this identity in form of the *Gastrula* with the representatives of the different animal stocks (or sub-kingdoms), from the sponges up to the vertebrates, he imagines an unknown stem-form of animals, typified by *Gastrula*, which he calls *Gastræa*.

TEMPERATURE AND LIFE OF THE ARCTIC OCEAN.—In Prof. Moebius' report on the Zoology of the Second German North-Polar Voyage (translated and abridged in the *Annals and Magazine of*

Natural History, March) it is stated that so slight are the oscillations of temperature in the polar sea above the parallel of 70° , (ranging between 32° and 36° Fahr.) that the marine animals of Greenland are in just as favorable a position as the animals of the tropical seas, where, as observed by Dana, and others more recently, the temperature of the surface and the bottom at 22 fathoms was identical.

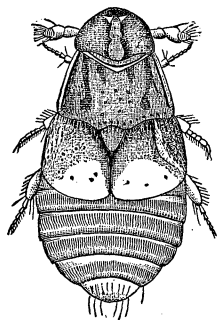
"I suppose that the nearly uniform temperature in which the high northern marine animals live is one of the chief causes of the considerable size by which, according to numerous observations, they are distinguished from individuals of the same species in temperate regions; for at the bottom of the icy sea, species which from their nature can thrive in a low temperature, are but little if at all exposed to those disturbances which the greater oscillations of temperature produce in the vital conditions of the animals of more temperate seas. The organs can consequently perform their functions in a more uniform manner (so far as these are dependent on temperature) than in individuals of the same species which inhabit, for example, the middle and higher regions of the North Sea and the Baltic, where the differences between the lowest and highest temperatures of the water amount to 10° – 15° R. ($=22^{\circ}\cdot 5$ – $33^{\circ}\cdot 75$ F.), or sometimes even more, as has been ascertained by H. A. Meyer, for various points in the western basin of the Baltic, and by myself for two places in the North Sea off the German coast."

A WORM WITH EXTERNAL OVARIES.—In the same paper Prof. Moebius figures and describes a new genus of chaetopod worms with external ovaries from the eighteenth segment onwards: they are situated below the branchiae, and at the boundary between the two segments. Within the body-wall in the same segments are also eggs. The worm is named *Leipoceras uviferum*. It is the only worm known which has external ovaries. In a notice in the same journal it is stated that Moebius has discovered that another worm (*Scolecoplepis cirrata* Sars) carries its eggs in pouches like a swallow's nest, along the hinder segments of the body. Many Polychætous worms bear their eggs in sacs attached to the ventral surface of the body (e. g., *Autolytus prolifer* Müll.). One (*Syllis pulligera* Krohn) carries them in the shorter dorsal filaments of its feet, while in *Spirorbis spirillum*, the eggs are carried in folds of the skin, developed in the peduncle of the operculum, with which it closes its tube.

A REMARKABLE BEETLE PARASITE OF THE BEAVER.—Dr. LeConte describes, in the "Proceedings of the Zoological Society of

London," Nov. 5, 1872, a new family of Coleoptera under the term *Platypsyllidæ*, founded on *Platypsylla castoris* (Fig. 82), made

Fig. 82.



Platypsylla castoris.

known by Ritsema, who discovered it on specimens of the American beaver in the Zoological gardens of Amsterdam. A little later Prof. Westwood described it under the name of *Platypsyllus castorinus*, a singular coincidence as regards the scientific name. Ritsema regarded it as representing a family of the Aphaniptera, equivalent in value to the *Pulicidæ*, *i. e.*, dipterous. Westwood thought it to be a type of a new order of insects, the *Achreioptera*. Dr. LeConte, and we are fortunate in having in our country one who easily leads the ranks of Coleopterists, after a hasty examination, regarded the insect as coleopterous, a conclusion confirmed by further careful study, the results of which are presented in the beautiful paper before us.

In this singular insect, the body is long oval, flattened, spiny on the exposed portions, resembling at first sight a minute cockroach, and of the same color. The wing covers are small, not longer than the prothorax, and the head is nearly semicircular, the eyes entirely wanting, the antennæ nine-jointed, clavate; the maxillæ large, with four-jointed palpi; the mentum large, the ligula broad, and the labial palpi short and three-jointed, while the labrum is peculiar. After comparing this beetle with those of other families, the author decides that "the affinities of this insect are very composite, but all in the direction of the Adephagous and Clavicorn series, though chiefly with the latter. The most convenient position of the family will probably be between Hydrophilidæ and Leptinidæ as the families are now arranged, though its tendency to Trichopterygidæ and Corylophidæ is equally strongly manifested. It is therefore a very peculiar and extraordinary synthetic type, which is almost equally in and out of place in any linear arrangement of the series with which it is allied."

As this parasite occurs on our native beaver we hope our naturalists will be on the lookout for specimens, and carefully examine the fur of these animals for that purpose.

TORNARIA NOT A LARVAL STARFISH, BUT THE YOUNG OF A WORM.—Mr. Alexander Agassiz has discovered that the Tornaria, an immature microscopic floating animal, which he in common with other naturalists had thought to be a young starfish, is really a young worm. The parent is a remarkable worm, found at different points on our coast and that of Europe, burrowing in sand, and described by the celebrated Italian zoologist Delle Chiaje. The history of Balanoglossus as given by Agassiz “while showing great analogy between the development of Echinoderms and the Nemertian worms, by no means proves the identity of type of the Echinoderms and Annuloids. It is undoubtedly the strongest case known which could be taken to prove their identity. But when we come carefully to analyze the anatomy of true Echinoderm larvæ, and compare it with that of Tornaria, we find that we leave as wide a gulf as ever between the structure of the Echinoderms and that of the Annuloids.” Now the young of certain Echinoderms have a form very similar to larval worms. On this chiefly Prof. Huxley, misled by the names given by J. Müller to some of these larvæ has revived the old opinion of Oken, and associated the Echinoderms with the Articulates; but as he based his opinion entirely upon the figures of Müller, and not upon original investigations, his conclusions, which have been adopted by the majority of English naturalists, do not appear to Mr. Agassiz as tenable. “The hypothetical form to which Huxley reduces these larvæ, to make his comparisons and to draw his inferences, is one which has never been observed, and as far as we now know does not exist.” His paper, with many beautiful figures, appears in the “Memoirs of the American Academy of Arts and Sciences.”

THE WHITE-NECKED RAVEN.—This bird is seldom seen in the mountains at any period of the year, but during winter it is very common in the vicinity of Denver. As it is rarely molested, it has become so tame that it enters the gardens and streets in the quieter portions of the city and perches on the trees and fences, regarding the passers-by with more curiosity than fear. Like the eastern crow it is social in its habits, going in small parties of two or three up to ten or twenty; and in its general actions and appearance it closely resembles that bird. Its croak is thinner and shriller than that of *C. corax*, which is here seldom, if ever, found. On clear, warm afternoons during winter and early spring,

the white-necked raven sometimes ascends to considerable heights, and sails in slow, wide circles somewhat like the buzzard. In summer and fall it is by no means as tame and familiar as during the colder months of the year, and exhibits much of the peculiar cunning of the crow. It breeds in the timber along the stream; during summer I have never observed it in the mountains.

This species probably ranges all along the foot of the Rocky Mountains at least as far north as Wyoming, and extends to a considerable distance eastward over the plains. I have seen it at least a hundred miles east of Denver. I venture to suggest that its range will be found to join that of *C. Americanus* on the east, and that of *C. corax* on the north, being thus the southwestern representative of the genus.—T. MARTIN TRIPPE, *Denver, Col.*

RELATION OF THE CŒLENTERATES AND ECHINODERMS.—At the close of an important paper entitled "Studies on the Development of the Medusæ and Siphonophora" in a late number of Siebold and Kœlliker's *Zeitschrift Metschnikoff*, a Russian zoologist, thus expresses his views as to the affinities of the Cœlenterates and Echinoderms drawn from a study of the larvæ of the two types.

"In conclusion I will again affirm that I regard the Cœlenterates and Echinoderms as two different types, but which have so many relatives on both sides, that they should always be placed next to each other in the system. I think that between the two there is the same grade of similarity as between the higher worms (Hirudinea, Gephyrea and Annelides) and the Arthropods (Insects and Crustacea). In order to be assured of this, we must observe the bearings of embryological facts, and in regard to the Cœlenterates and Echinoderms not forgot, that the body-cavity and peritoneal cavity represent two different things." This is opposed to the view which Huxley and some German naturalists entertain as to the affinities of the Echinoderms, placing them next to the worms and breaking up the type of radiates (which view is fashionable just at present in Europe;) and confirmatory of the views of those who adhere to the Cuvierian type of Radiates.

NEW CARBONIFEROUS MYRIOPODS FROM NOVA SCOTIA.—It will be remembered that Dr. J. W. Dawson of Montreal discovered the remains of a galley worm or millepede in a stump of *Sigillaria*, which flourished during the early part of the Coal period of Nova Scotia. It occurred with a land shell, and in the

same precious stump occurred the fragments of six-footed insects preserved in the coprolites of the lizards that once ran up and down those trees. The fragments of galley worms were described by Dawson under the name of *Xylobius Sigillariae*. On subjecting them to farther examination, Mr. Scudder finds there were in reality, portions of three other species of *Xylobius*, and a species of a new genus, which he also thinks should form the type of a new family. It is described in the "Memoirs of the Boston Society of Natural History," under the name of *Archiulus xylobioides*, and the family is called *Archiulidae*. The insects found with them, but in too small pieces to be recognizable, belonged to the Orthoptera and Neuroptera.

THE DISCOVERY OF THE ORIGIN OF THE STING OF THE BEE.—In Siebold and Kölliker's "Journal of Scientific Zoology" for July, 1872, containing an account of the Proceedings of the Zoological division of the 3rd meeting of the Russian Association of Naturalists, at Kiew, is an abstract of a paper by Ouljanin on the development of the sting of the bee. The author describes but two pairs of imaginal disks, while three were discovered and described by the undersigned in 1866. The author homologizes the elements of the sting with the feet, as had already been done by me in 1871. Soon afterwards Dr. C. Kraepelin published an elaborate article on the structure, mechanism and developmental history of the sting of the bee. In speaking of the origin of the sting (p. 320, vol. 23, 1873), he only refers to Ganin's observations made in vol. 19, of the same journal (1869). Dr. Kraepelin seems to have overlooked the writers' papers* on the origin of the sting of the bee and ovipositor of other insects (*Æschna* and *Agrion*) published in 1866 and 1868, the observations and drawings having been made in 1863.—A. S. PACKARD, Jr.

DEEP SEA DREDGINGS IN THE GULF OF ST. LAWRENCE.—Mr. J. F. Whiteaves records in the March number of the "American

* Observations on the Development and Position of the Hymenoptera, with notes on the Morphology of Insects, Proceedings Boston Society N. H., published May, 1866. On the structure of the Ovipositor and Homologous parts in the male Insect. Proceedings Boston Society, N. H. vol. xi, published in 1868. Guide to the Study of Insects, 1869, pp. 14, 536. Embryological Studies on *Diplax*, *Perithemis*, and the *Thysanurous* genus *Isotoma*. Memoirs Peabody Academy of Science, 1871, p. 20. Here the spring of the *Poduridae* is homologized with a pair of blades of the ovipositor of the bee, etc., and the ovipositor regarded as homologous with the spinnerets of spiders and abdominal feet of myriopods.

Journal of Science" the occurrence of the following recent additions to the American fauna, in depths of from 200 to 220 fathoms; of sponges, *Trichostemma hemisphericum* M. Sars, and *Cladorhiza abyssicola* M. Sars, with *Hyalonema longissimum*; of echinoderms, *Ophioscolex glacialis*; of polyzoa, *Flustra abyssicola* G. O. Sars, and *Escharella palmata* Sars; of shells, *Portlandia lucida*, *P. frigida*, *Cylichna umbilicata* and *Cerithiopsis costulata*; of crustacea, *Calocaris MacAndreæ* Bell, *Munidopsis curvirostra*, a new genus and species, allied to *Munida*; *Pseudomma roseum* G. O. Sars, *Halirages fulvocinetus* Böeck, *Munnopsis typica* Sars, and several other species. Numerous interesting species, many of them new to the American coast, were also dredged in shallower water, on the Orphan and Bradelle Banks, and at the entrance of Gaspé Bay. Among the crustacea from these localities were *Leucon nasicus* Kroyer, *Acanthostephia Malmgreni* Böeck, *Ædiceros lynceus*, and *Aceros phyllonax* Böeck.

THE MOUTH PARTS OF THE DRAGON FLY.—An important article on the mouth parts of the dragon fly, Perlæ and allied forms (*Orthoptera amphibiotica*), is published by Dr. Gerstaecker, in the memorial volume of the Centennial Celebration of the Society of the Friends of Science in Berlin, 1873. The author describes and figures the palpi of the dragon flies. They possess a one-jointed maxillary palpus, and 2-jointed labial palpus, which are not however in the maxillæ palpiform, but constitute a simple lobe (galea of Burmeister, Erichson and Ratzburg). In Hagen's "Synopsis of Neuroptera of North America" (1861) it is stated "mouth not furnished with palpi." This statement, which is morphologically inexact, was copied in the "Guide to the Study of Insects." It will be corrected in the fifth edition of the latter, as it was unfortunately too late to correct the statement in the fourth edition, now passing through the press, except in a few words in the preface.—A. S. P.

A NEW TYPE OF SNAKES.—I have recently described a snake from the Amazonian region of Peru, in which the spines of the dorsal vertebræ are so dilated at the summit as to present a series of bony plates along the middle line of the back, homologous with the central pieces of the shield of a tortoise. The species presented other peculiarities and was called *Genhosteus prosopis*. It was discovered by Prof. James Orton.—E. D. C.

NOTICE OF A SPECIES OF TERN NEW TO THE ATLANTIC COAST OF NORTH AMERICA.—During the last summer Mr. Franklin Benner of New York, while a member of Prof. Baird's Fish Commission party at Peak's Island, Portland Harbor, Maine, obtained a fine specimen of a species of tern which approaches very near to the characters of the *Sterna longipennis* Nordmann, or *Sterna Pikei* Lawrence, although it differs in several particulars from the descriptions of this species. The specimen was presented by Mr. Benner to the National Museum, in which it is numbered 64,394. It may be described as follows:—

Portland Harbor, Me., July, 1873. Adult, summer plumage?: head, neck, lower part of the rump, upper tail coverts, tail and entire lower parts snow white, the former with a black patch covering the occipital region and surrounding the eye. Mantle, wings, and outer webs of tail feathers pale pearly ash, deeper on the primaries, the outer web of the outer quill and that of the outer tail feathers, dark slate color. Bill and feet, uniform deep black. Wing, 9·60; tail, outer feather, 6·00, middle, 3·40; culmen, 1·15; depth of bill at the base, ·30; tarsus, ·55; middle toe, ·60.

Upon consulting the description of *S. Pikei* Lawr., in the ninth volume of the "Pacific Railroad Reports" (page 863), it will be seen that that species, or at least the type, has a dark-red bill and orange-colored legs. The description of *S. longipennis* Nordmann (in Coues' Key, p. 320), with which Dr. Coues considers *S. Pikei* to be identical, says the bill of that species is "black, or reddish-black, the point often whitish," but makes no mention of the color of the feet. The bird obtained at Portland has both the bill and feet uniform deep black. In view of the fact that it seems to correspond in general dimensions and colors of the plumage with *S. longipennis*, I have concluded to refer it to that species. This bird is in adult summer dress, yet the whole forehead and lores back to the posterior portion of the crown is immaculate white. It is, however, possible that the autumnal plumage was put on prematurely. In the event this bird should prove distinct from *S. longipennis*, I propose for it the name *Sterna Portlandica*.—ROBERT RIDGWAY.

THE RUDDY DUCK.—On the 10th Sept., 1873, I was greatly surprised at finding two immature specimens of *Erismatura rubida* hanging up with a bunch of winter and summer yellow

legs in a game stall in Quincy market, Boston. They had been sent from Cape Cod, Mass., the day previous, where they were said to have been shot. They were apparently not more than six weeks old and as their wings were not fledged enough to fly a rod, they undoubtedly must have been hatched in that locality.

This is indeed a very eastern range for this species to have bred, as I believe its usual breeding habitat is in the region of the Rocky Mts. Dr. Elliott Coues writes me "I found the ruddy duck breeding abundantly in July, in ponds on Turtle Mt., exactly on the line of the 49th parallel, between Dakota and the British Possessions, about 150 miles west of Pembina (Red River of the North). I obtained many newly hatched young; eggs were laid in June. This is the only breeding place of this species, of which I am aware by personal investigation."

We have a large migration of this duck through eastern Massachusetts in October and November, which would indicate that they must also breed more directly north of our state, though possibly many may follow the chain of great lakes and St. Lawrence River to the Atlantic states.

I obtained one of the above specimens which I have in my cabinet, and I have no reason to doubt that these birds were taken on Cape Cod.

I have seen specimens, taken as far east as Niagara Falls in May; these were in high breeding plumage, though I did not learn that any nests had ever been found in that locality.—
RUTHVEN DEANE, *Cambridge, Mass.*

BIRDS NEW TO THE FAUNA OF NORTH AMERICA.—The Gyrfalcon of Northern Europe and Siberia (*Falco gyrfalco* Linn.) has recently been obtained at Kyska Harbor, one of the western Aleutians, by Mr. W. H. Dall, exploring that region under the auspices of the U. S. Coast Survey. The specimen is an adult female, in perfect plumage, obtained June 30, 1873. On the label are the remarks "eye brown," and "builds." The measurements of this specimen are as follows:—wing, 14.75; tail, 8.00; culmen, .95; tarsus, 2.30; middle toe, 2.05. The ground color of the upper parts is a very dark blackish plumbeous, the posterior portions, *i. e.*, the rump and upper tail-coverts (and more indistinctly the scapulars and wing-coverts), transversely barred with light bluish plumbeous. The head and neck, however, are entirely uniform

plumbeous black, except on the throat. The lower parts are, *everywhere*, including the under surface of the wings, marked with broad transverse bars of plumbeous-black, the two colors about equal in amount; the jugulum, and even the throat, with conspicuous, heavy, drop-shaped longitudinal markings of blackish.

This is the first capture of the Scandinavian, or true, gyrfalcon in North America, and the fact that it breeds in the Aleutians warrants its introduction into the nearctic fauna.

Numenius femoralis Peale must also be added to the number of North American birds, a fine specimen having been obtained May 18, 1869, by Mr. Ferdinand Bischoff, naturalist to the overland telegraph expedition, under the direction of Col. C. S. Bulkley. It is now in the National Museum (No. 58,471 ♂).

This specimen has been compared with Sandwich Island examples, and found to be identical. The species is very different from any other North American one.—ROBERT RIDGWAY.

ON SOME OF THE EVIDENCES OF LIFE IN GREAT SALT LAKE.—Dr. A. S. Packard, Jr., in his interesting remarks on “Insects inhabiting Great Salt Lake and other Saline or Alkaline Lakes in the West,” as given in Dr. Hayden’s last Report, very properly expresses the hope that some one will make a careful examination of the shores of the lake, and carefully preserve all traces of life which he may find there.

As I examined a portion of the eastern shore of the Great Salt Lake, last year, it may be of advantage to naturalists if I mention some of the evidences of life which I found there. Of course I found the flies, such as are seen by all who visit the lake in summer; the shore was almost literally black with them. They rose before us, but immediately settled down again upon the sands, close to the lake, when we had passed. Their larvæ, in the greatest abundance, were attached to the bottom, and to submerged sticks, close to the shore; and their pupa skins lay in piles on the shore. The little shrimp-like crustaceans (*Artemia fertilis*) were also seen in great profusion, and these were the most numerous, apparently, where the water was the saltiest, as in portions partly shut off from the lake.

I collected a large number of shells on the shore of the lake, but did not interpret them as representing life in the lake; they are all, I believe, fresh-water forms. Besides these, I found two

fishes, each about a foot long, on the shore of the lake, which without doubt came from the lake itself; but whether they floated there from Lake Utah, or from some one of the rivers that empty into the lake, or whether they belong to Great Salt Lake itself, I do not know. But I have so much faith in finding fishes and other lower forms of life in Great Salt Lake itself, that I shall dredge the lake at my earliest opportunity. I observed water-birds on the lake in great numbers.—SANBORN TENNEY, *Williams College*, Nov., 1873.

[Prof. Tenney has kindly sent to the Academy, portions of one of the fishes mentioned above, and it proved to be a cyprinoid allied to the western chubs. It is more probable that this lover of pure water was washed into the lake from some tributary and died immediately, than that it was ever an inhabitant of the lake. There is also a possibility of its having been brought by fish-catching birds from a distance. It is known that pelicans and gulls breed on the island in the lake in immense numbers, and that they take long flights for the purpose of securing their food.—F. W. P.]

ENGLISH SPARROWS. — The apprehensions I expressed in my "Key" lest these birds should molest our native species as soon as they overflowed municipal limits has been verified already. Mr. Thomas G. Gentry writes to me:—"The sparrows introduced a few years ago in Germantown, Pa., have become quite common in the adjoining country, and are driving away the robins, bluebirds and sparrows. They increase so rapidly and are so pugnacious, that our smaller native birds are compelled to seek quarters elsewhere." I did not expect the bad news quite so soon. Probably it will not be long before we hear the same complaints from other places. I have always been opposed to the introduction of the birds, mainly on this score, but also for other reasons. There is no occasion for them in this country; the good they do in destroying certain insects has been overrated. I foresee the time when it will be deemed advisable to take measures to get rid of the birds, or at least to check their increase.—ELLIOTT COUES.

A NEW GROUP OF CYPRINIDÆ.—Prof. Cope has recently printed a paper in the "Proceedings of the American Philosophical Society" on the *Plagopterinæ*, a group of cyprinoid fishes characteristic of the hydrographic basin of western Colorado. The group differs

from all those related to it in the possession of five osseous spines of the ventral fins, and two closely united osseous spines in the front of the dorsal. In some of the species the remaining dorsal and some pectoral rays are simple and osseous for a large part of their length. In the osseous ventral rays this group resembles the extinct *Saurodontidæ* of the cretaceous period. Three genera were described, viz : *Plagopterus* Cope, with beards and no scales ; *Meda* Girard, without either beards or scales ; and *Lepidomeda* Cope, with scales and no beards. There are four species, three of which had been brought to light by the naturalists of Lieut. Wheeler's U. S. Survey, west of the 100th meridian.

A HORNED ELOTHERIUM.—At a recent meeting of the American Philosophical Society I exhibited the greater part of the mandible of a large extinct hog of the genus *Elotherium* which had been described in the "Bulletin of Hayden's Geological Survey of the Territories" as *E. ramosum* Cope. The animal was as large as the Indian rhinoceros, and is peculiar in the possession of two osseous tuberosities on each side, the front pair standing on the chin and projecting into horns of much strength.—E. D. C.

THE SKUNK.—In the "American Journal of Science," for May, the Rev. H. C. Hovey has a very important and interesting article under the title of *Rabies Mephitica*, in which it is shown that the skunk can no longer be regarded as simply a very disagreeable animal, but on the contrary a most dangerous one, and is to be classed with the rattlesnake as an enemy to mankind. As strange as it may appear, Mr. Hovey has brought forward an array of facts to prove that the skunk is very often affected with a disease or perhaps with a natural salivary secretion, that causes its bite to be far more dreaded than that of the rattlesnake or of a mad dog. As the skunk is a nocturnal animal that steals upon his victim without warning and gives the bite which almost invariably proves fatal, it is truly to be dreaded ; especially is this the case in the western states where the animal is abundant and many persons are nightly exposed to its attacks. We advise all to read the article and take warning.

THE REDHEADED WOODPECKER IN MAINE (*Melanerpes erythrocephalus* Sw.).—This bird was shot in Orono last summer by a student of the Agricultural College. I have never before seen it in

Maine, and do not find it noticed in any lists of birds given for Maine, to which I have access, except in one published by the Portland Society of Natural History. I do not know from that list who found the bird, or in what part of the state it occurred. The bird may be common in this state but it is new to me in this region.—C. H. FERNALD.

MENOBANCHUS EDIBLE. — Cayuga Lake (near Ithaca, central New York) abounds with the spotted Proteus, *Menobanchus maculatus* (perhaps a variety of *M. lateralis*, but never striped and always spotted). In preparing a paper upon their anatomy and embryology, Dr. W. S. Barnard and myself have occasion to use them in numbers; and a single fisherman, who sets many hooks for fish has brought us a hundred during the past month (March); he, and all others, apparently regard them as poisonous, and are rather averse to touching them; so far is this from the case, that they are absolutely harmless in every way; and on the 5th, Dr. Barnard and myself eat one which was cooked, and found it excellent; it is our intention to recommend it as food, but not until our investigations are concluded.—BURT G. WILDER.

NEW CRUSTACEA OF THE SWEDISH JOSEPHINE EXPEDITION. — The Norwegian naturalist G. O. Sars, the son of the celebrated zoologist, Professor Michael Sars, has worked up the species of Cumaceæ found by the Josephine expedition. They are little shrimp-like Crustaceans, some of which were found at great depths by the naturalists of the Swedish expedition which participated in the recent deep sea explorations with the dredge. As some of the species new to science are from near the coast of Long Island, the paper will be of interest to our American zoologists. The work is done in the most thorough manner, with admirably executed plates. It forms one of the memoirs of the Swedish Academy.

SPECIAL MODE OF DEVELOPMENT OF CERTAIN BATRACHIANS. — In a letter printed in the "Revue Scientifique," No. 37, 1873, M. Jules Garnier communicates some remarkable observations that have been made by M. Baray on certain Hylodes which exist in large numbers in the island of Guadaloupe. These animals are widely distributed over the island, being found not only near the sea, but in the higher lands of the interior, and after rain their croak makes the air resonant. The physical features of Guada-

loupe, a volcanic island, the soil of which is composed of tufa, pozzuolana and similar material, are so peculiar and so very unfavorable for the maintenance of tadpole life, which is essentially piscine, that M. Baray was led to expect the existence of some peculiarities of development. The ova were easily procured, as they were everywhere present under moist leaves. No tadpoles could be discovered, but many of the frogs were of an extraordinarily minute size. The eggs were spherical, with a diameter of from three to four millimetres, and were each provided with a small spheroidal expansion resembling a hernia of the gelatinous mass through a pore in the envelope. In the centre of the sphere the embryo was visible, lying on a vitelline mass of a dirty white color, and having a thin body, a large head and four styliform members with a recurved tail. When the egg was touched the embryo moved rapidly and changed its position. A day later the embryo was perfect, with a tail as long as the body, translucent and like that of a tadpole. The limbs immediately formed, and at the expiration of a few days little frogs of a dark grayish brown color, and *without a vestige of a tail*, escaped from the egg. M. Baray's observations have established the following facts: — 1. That this *Hylodes Martinicensis* commences life by a rotatory movement of the future embryo; 2. The fully formed embryo performs the rotatory movements more rapidly, but in a horizontal plane; 3. The branchiæ make their appearance, and again vanish sometime afterwards; 4. The larva in the ovum is provided with a tail and limbs; 5. The tail of the larva not only facilitates the movements of the imprisoned animal, but also aids respiration by the numerous and minute vessels which ramify in this highly developed appendage; 6. The animal issues from the egg in the form which it preserves throughout life. As M. Garnier observes, these observations seem to constitute a starting-point for a special investigation of great importance, and have a close relation to the question of the adaptability of species to surrounding conditions. It may be asked in this case whether the frog has been created with special modifications adapting it to live in an island destitute of marshes, or has it in course of time acquired a new mode of development enabling it to survive under the exceptional conditions under which it has been placed. — *The Academy*.

THE PALEONTOLOGICAL HISTORY OF TRILOBITES, ETC., AS OPPOSED BY BARRANDE, TO THE EVOLUTION THEORY. — During the

year past, another large quarto volume on the trilobites, by M. Barrande, the distinguished paleontologist, has appeared, illustrated with numerous plates. The author strongly opposes, on paleontological grounds, the prevalent evolutionary theories. His conclusions we present as briefly as possible; they are of great weight as coming from so experienced and able an observer. He thinks that there is no trace of a gradual improvement of the original type whatever in the entire series of the trilobites. In considering the fossil Crustacea of the earliest Silurian formation of Europe, he regards the coexistence of their principal types, such as the Phyllopoetes, and the Ostracodes, with the trilobites of the primordial fauna, so well exhibited in England and Sweden, as constituting an important fact. "Indeed, among the positive facts of paleontology, there are none which would lead us to suppose that forms so contrasted, as we have just indicated, were derived from a common ancestry, by means of filiation or transformation. This descent is thus far a pure creation of the imagination." Again he says, "The great difference of structure which separates the type of trilobites and the types of these two orders (Ostracodes and Phyllopoetes) carries us back to a very distant age before the Silurian primordial fauna, if we suppose, according to theory, that they were all derived from a common ancestry. This supposition will oblige us to admit that all the intermediate forms have invariably disappeared in all the countries of the globe, and in a long series of antepriordial deposits, unknown up to this day." That this inexplicable disappearance, even if accounted for by future discoveries, would only give way to still more formidable facts opposed to evolution, Barrande thinks would be the case; and he goes on to say that the trilobites of the "second fauna" of the Lower Silurian rocks of Bohemia, make their first appearance, accompanied not only by two types of Ostracodes, *Primitia* and *Beyrichia*, but also with two types of Cirripedes, or barnacles, perfectly characterized, and which he calls *Anatifopsis* and *Plumulites*.

Difficulties such as these rise at each step, he adds, in our paleontological studies, and it has resulted from his work, "that instead of establishing zoological connections, and a gradual transition between the different types of Silurian Crustacea, on the contrary the contrasts in their conformation were not less during those primitive ages, than in those posterior, and that the suddenness of appearance of each of them, with the completeness

of their organization, is irreconcilable with the progressive and successive evolution that these theories suppose."

We have been unwilling, with the *Eozoön Canadense* generally received as a proof of the existence of life in the Laurentian period, to believe that the Bohemian strata, investigated so ably by M. Barrande, represent the lowest platform of life.

Mr. Henry Hicks in a recent number (Feb. 5) of "Nature" claims that M. Barrande's list of fossils from the Cambrian formation of England is very incomplete. Instead of there being "no trace of a trilobite" in the Cambrian formation, Mr. Hicks has found sponges, annelides, brachiopods, pteropods, bivalved Crustaceans and trilobites; among the latter a low genus (*Microdiscus*) with four thoracic segments; the genus has also been found in Canada. It seems best, then, for paleontologists to suspend their judgment, and await the discovery of new facts before pronouncing for or against a primordial fauna more ancient than the Cambrian even. Considering what remarkable intermediate types have been discovered of late in the Rocky Mountains, the advocates of evolution can well afford to wait patiently for a solution of these knotty problems in biology.

MONOGRAPH OF THE WHALE LICE.—A full account of the various species of *Cyamus*, or so called whale louse, with many figures, has been published in the "Memoirs of the Scientific Society of Copenhagen" by Dr. Lütken. These troublesome crustaceans, allied remotely to the common beach-flea, cling by means of their long claws to the more protected and softer parts of whales, such as the bowhead, the humpbacked, the sperm whales, narwhal and grampus, while they have never been found on the *Balænoptera*, or fin back whale.

GEOLOGY.

THE CARBONIFEROUS FORMATION OF SOUTH AMERICA.—An examination of the rich brachiopod fauna, collected by Prof. Hartt and his party on his two late expeditions to the Amazonas, from Itaituba, just below the lower falls of the river Tapajos, shows that the carboniferous beds at that place belong to the coal measures.

Associated with a number of new species soon to be described, there are found at that locality, *Spirifera camerata* Morton,